In the Claims

The following is a complete list of claims. The claims below replace all prior versions of the claims in the application. Applicant hereby amends claim 10.

1. (Original) An anode-supported solid oxide fuel cell comprising
   (a) an anode support layer comprising a porous ion-conducting structure having pores impregnated with a catalytic and electronically conductive material;
   (b) an electrolyte layer in adjacent intimate contact with the anode support layer; and
   (c) a cathode layer in adjacent intimate contact with the electrolyte layer.

2. (Original) The fuel cell of claim 1 wherein the catalytic and electronically conductive material is selected from the group of nickel, copper, silver, tungsten, and any alloys of these materials.

3. (Original) The fuel cell of claim 2 further comprising a second phase material mixed with the catalytic and electronically conductive material, the second phase material being selected from the group of yttria-stabilized zirconia (YSZ), doped cerium oxide, alumina or its salts.

4. (Original) The fuel cell of claim 2 further comprising an anode functional layer between the anode support layer and the electrolyte layer such that the electrolyte layer is in adjacent intimate contact with the anode functional layer instead of the anode support layer.

5. (Original) The fuel cell of claim 4 wherein the porous ion-conducting structure of the anode support layer is substantially yttria-stabilized zirconia (YSZ).

6. (Original) The fuel cell of claim 5 wherein the catalytic and electronically conductive material is substantially evenly distributed throughout the anode support layer.

7. (Original) The fuel cell of claim 5 wherein the catalytic and electronically conductive material is Ni-containing material and is compositionally graded through the thickness of the anode support layer, with a higher concentration of the Ni-containing material at one major surface of the anode support layer than the other.

8. (Original) The fuel cell of claim 7 wherein the anode support layer further comprises a second conductive metal selected from the group of ferritic steel, super alloy, and Ni-Ag alloy and which is concentrated at the major surface of the anode support layer having the lower concentration of Ni-containing material.

9. (Original) The fuel cell of claim 4 further comprising a porous zirconia-nickel cermet buffer layer sandwiched in between the anode support layer and anode functional layer, and having a porosity between 40-90%.

10. (Currently Amended) The fuel cell of claim 4 wherein the ~~composition of~~ porous ion conducting structure of the anode support layer is comprised of a mixture of 10-30 vol. % of Ni, or NiO or both, and the balance yttria-stabilized zirconia (YSZ).

11. (Original) The fuel cell of claim 4 wherein the anode support layer further comprises a plurality of vias extending through the thickness of the ion conducting structure of the anode support layer, at least some of the vias being filled with an electronically conducting material.

12. (Original) An anode-supported solid oxide fuel cell comprising
(a) an anode support layer comprising an ion conducting structure with a plurality of vias extending through the thickness of the ion-conducting structure, at least some of the vias being filled with electronically conductive material;
(b) an anode functional layer in adjacent intimate contact with the anode support layer;
(c) an electrolyte layer in adjacent intimate contact with the anode functional layer; and
(d) a cathode layer in adjacent intimate contact with the electrolyte layer.

13. (Original) An anode-supported solid oxide fuel cell comprising
(e) an anode support layer;
(f) a porous cermet buffer layer in adjacent intimate contact with the anode support layer, and being composed of a zirconia-nickel cermet with a porosity between 40 and 90%;
(g) an anode functional layer in adjacent intimate contact with the buffer layer;
(h) an electrolyte layer in adjacent intimate contact with the anode functional layer; and
(i) a cathode layer in adjacent intimate contact with the electrolyte layer.